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Chronic CAD/Stable Ischemic Heart Disease

BIOLOGICAL CORRELATES AND CLINICAL IMPLICATION OF ANGIOGRAPHICALLY DETECTED CORONARY ARTERY CALCIFICATION IN PATIENTS WITH END STAGE RENAL DISEASE

ACC Moderated Poster Contributions
McCormick Place South, Hall A
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Session Title: When CAD Gets Really Bad: Renal Disease, Polyvascular Disease, and Diabetes
Abstract Category: 2. Chronic CAD/Stable Ischemic Heart Disease: Clinical
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Background: Cardiovascular disease is the leading cause of death in patients with end stage renal disease (ESRD). Coronary artery calcification (CAC) is common in these patients, tends to be medial and complicates percutaneous therapies. Little is known about its biological correlates or clinical implications.

Methods: Of the 577 consecutive adult ESRD patients evaluated in our dedicated cardiac clinic before renal transplant, 282 had coronary angiography. These were analyzed using AHA classification of anatomical segments for presence of stenosis by QCA and calcification. Segmental calcification was classified as mild, moderate or severe depending on circumferential and longitudinal extent. Clinical correlates and outcomes were analyzed.

Results: The characteristics of the angiographic cohort included age 58+11 years, hypertension in 97% and diabetes mellitus in 77%. There was significant CAD (>50% diameter stenosis) in 50% of the patients. Seventyone percent of patients had angiographic CAC, 19% in one vessel, 25% in two vessels and 27% in all three vessels. Proximal LAD was the most common site (56%) followed by proximal LCX (41%), proximal RCA (38%) and the left main (32%). The predictors of CAC included higher age ($p< 0.0001$), hypertension (RR 5.2, $p=0.02$) and diabetes mellitus (RR 2.1, $p= 0.02$). Aortic valve calcification on echocardiography was a significant predictor of left main calcification ($p=0.03$) but not of other vessels. There was a strong association between segmental CAC and significant coronary stenosis, more striking in LAD (LAD RR 7.4, $p<0.0001$, LCX RR 2.8, $p= 0.0002$, RCA RR 4.1, $p<0.0001$). Severity of CAC was predictive of higher SYNTAX score ($p=0.001$). However, CAC was not predictive of mortality over a follow up of 2 years.

Conclusions: 1) Angiographically detected coronary artery calcification (CAC) is mainly predicted by age, hypertension and diabetes. Proximal LAD is the most common site of CAC. 2) Aortic valve calcification is strong predictor of left main calcification. 3) There is strong association between segmental CAC and degree of stenosis. 4) Greater severity of CAC both locally and globally was predictive of higher SYNTAX score.